# ECS
# Evaluation Packages

# EP4 Design Review

**September 20, 1994**

# EP4 Design Review Agenda

**3:00** EP4 Overview - George Percivall

**3:10** EOSView Design - SDPS Increment 0 - Brand Fortner

**3:30** SDPS EP4 Prototypes Status - Lynne Case

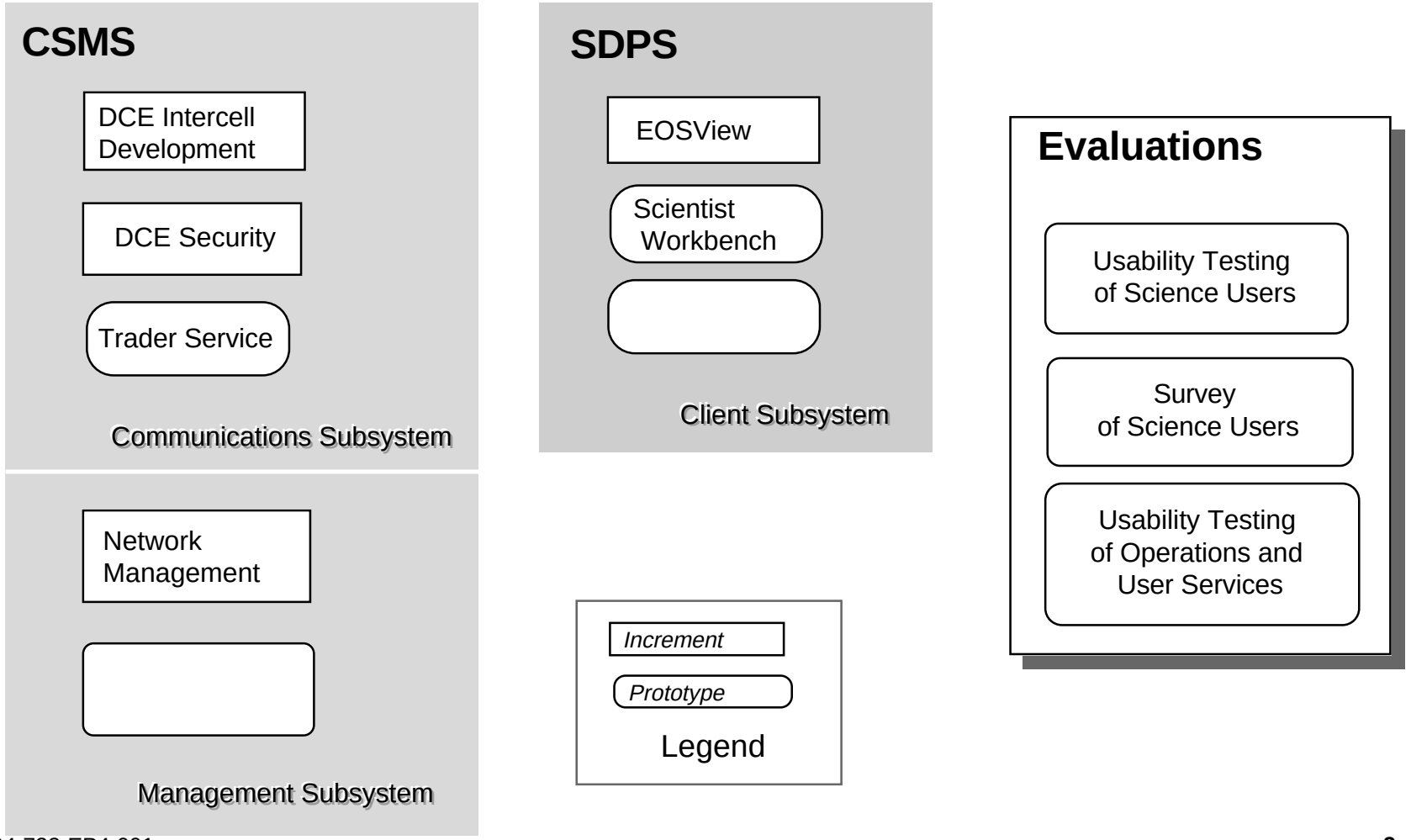
**3:50** CSMS Increment 0 and Prototypes for EP4 - Laks Prabhala

**4:30** EP4 Integration and Test - Gil Tadmor

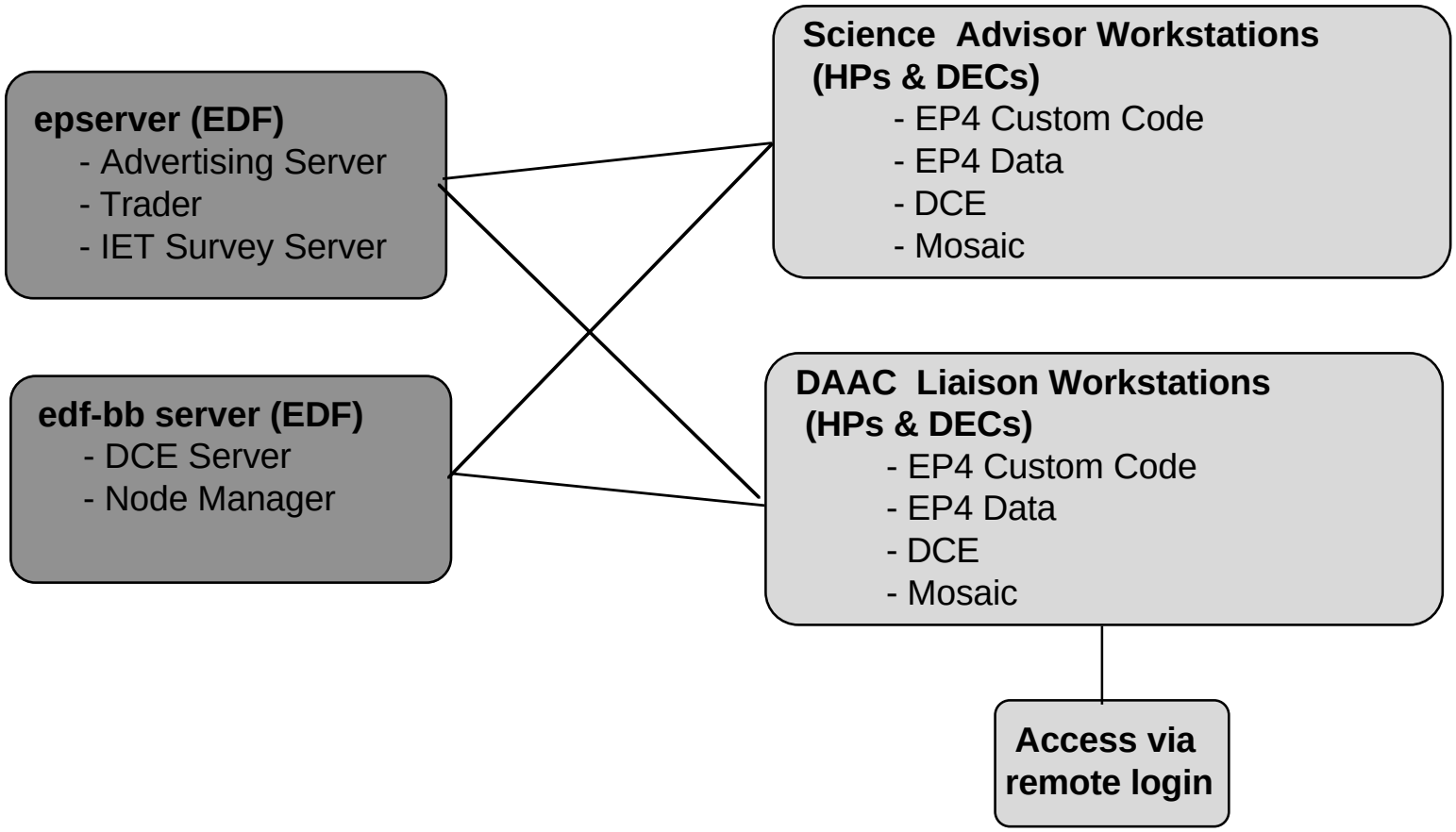
**4:50** Action Items and Next Steps - George Percivall

**5:00** Adjourn

# Summary of EP4



# EP4 Configuration



# EP4 Workstation Configuration

**Platforms for EP4**

- **HP: OS Version HP UX 9.03**
- **DEC: OS Version OSF/1 Version 2.0**

**EP4 Size**

- **SDPS Binaries: ~20 MB**
- **SDPS Static Data: ~ 60 MB**
- **SDPS Animation Data: ~100 MB TBR**
- **CSMS Data Logs: ~ 5 MB**
- **DCE (version 1.0.3 OSF) ~35 MB**
- **Mosaic ~1MB**

**Total Disk Utilization: ~250 MB TBR**

# EP4 Data

**Data for Advertising Service**

- **EDC and NSIDC data set descriptions from GCMD**
- **Service descriptions developed as part of prototype development**

**Data for EOSView**

- **DAAC Sampler:  2 HDF granules  per DAAC**
- **1 or 2 Animations: 30 images per animation**
- **Identified through Science Liaisons  - Dopplick**
- **Data bundled with binaries (no remote product access)**

# EOSView

## An HDF-EOS Cracker Tool


## Brand Fortner
## SDPS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## EP4 Design Review

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# EOSView Mission

**EOSView will make it easy for anyone, even non-EOS users, to read and understand HDF-EOS Datafiles.**

**EOSView will be widely available, both in terms of physical locations and in terms of supported platforms.**

**Visualization in EOSView will be for the purpose of data verification only. Analysis and presentation of data is best left to commercial applications.**

# EOS Visualization Needs

**An EOS User needs visualization for the following steps:**

- **Selection of Data**
  - EOS Client
- **Verification of Data**
  - Simple, interactive application
- **Analysis and Presentation of Data**
  - Commercial and Public Domain Software

# Meeting EOS Visualization Needs

**EOS can meet those needs in the following way:**

- **Selection of Data**
  - Scripting Language calling EOSView
- **Verification of Data**
  - EOSView: a simple, interactive application
- **Analysis and Presentation of Data**
  - EOSView provides conversions for commercial packages
  - EOSView can be called from commercial packages

# EOSView/EP4 Features

**EOSView/EP4 will interpret HDF files, not HDF-EOS files:**

- **Display HDF File Structures**
  - Hierarchical list with groupings opened by clicking
  - Status messages displayed at bottom
- **Display Raster Images and 2D Arrays as Pseudocolor**
- **Pseudocolor Window**
  - Image Pan, Image Zoom
  - Display of color palette, selection of alternate palette
  - Overlay of bitmap images
- **Preliminary Scripting Language**
- **Simple Animations**

# EOSView/EP4 Development

**Note that EOSView will be used as a separate binary application: the code will not be incorporated into any part of the EOS system.**

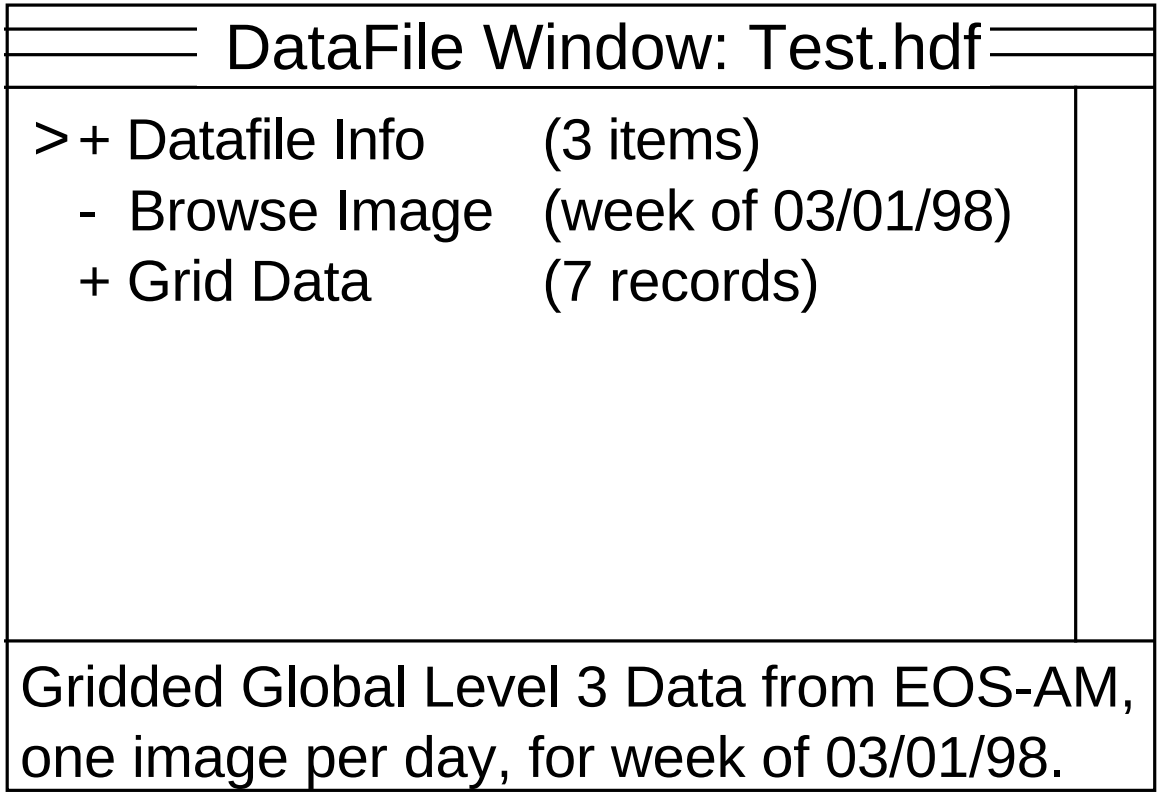
- **NCSA Collaboration**
  - Working with NCSA on HDF-EOS format
- **NOAA/NGDC Collaboration**
  - Joint development effort with GeoVu
  - Ted Habermann at NGDC is lead on effort
- **Development Environment**
  - Using XVT because of GeoVu collaboration
  - Using C to maintain compatibility with GeoVu and HDF
  - Have XVT libraries for UNIX, Windows, Macintosh

# EOSView Features

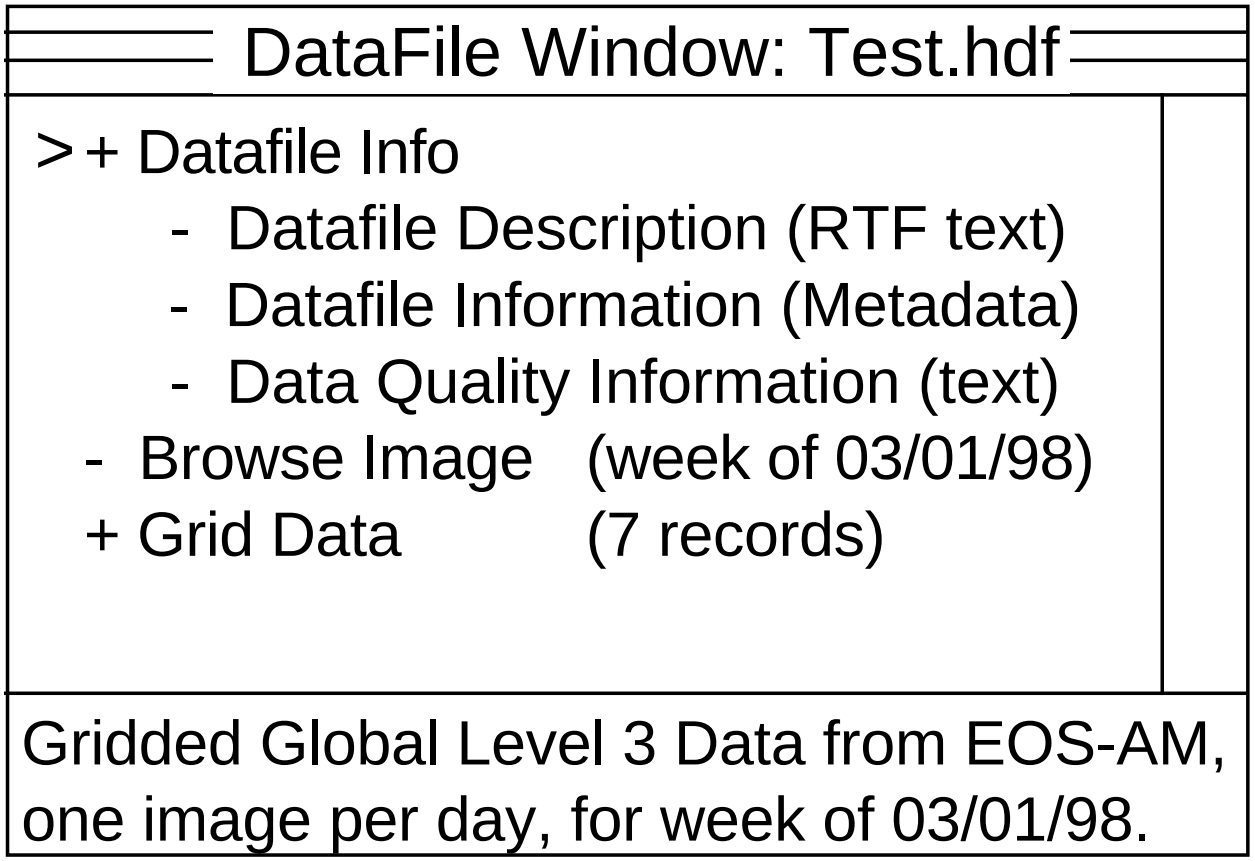
**Final release of EOSView includes the following:**

- **Scripting Language**
- **File Structure Display**
- **Visualizations**
  - Pseudocolor of 2D/3D arrays, grid, swath structures
  - Linegraphs and color scatter plots
  - Vector and Point overlays driven by metadata
- **Data Display**
  - Display arrays, tables  as spreadsheet  of values
  - Display metadata as text
- **Data Conversions: Binary, ASCII, etc.**
- **Animations**

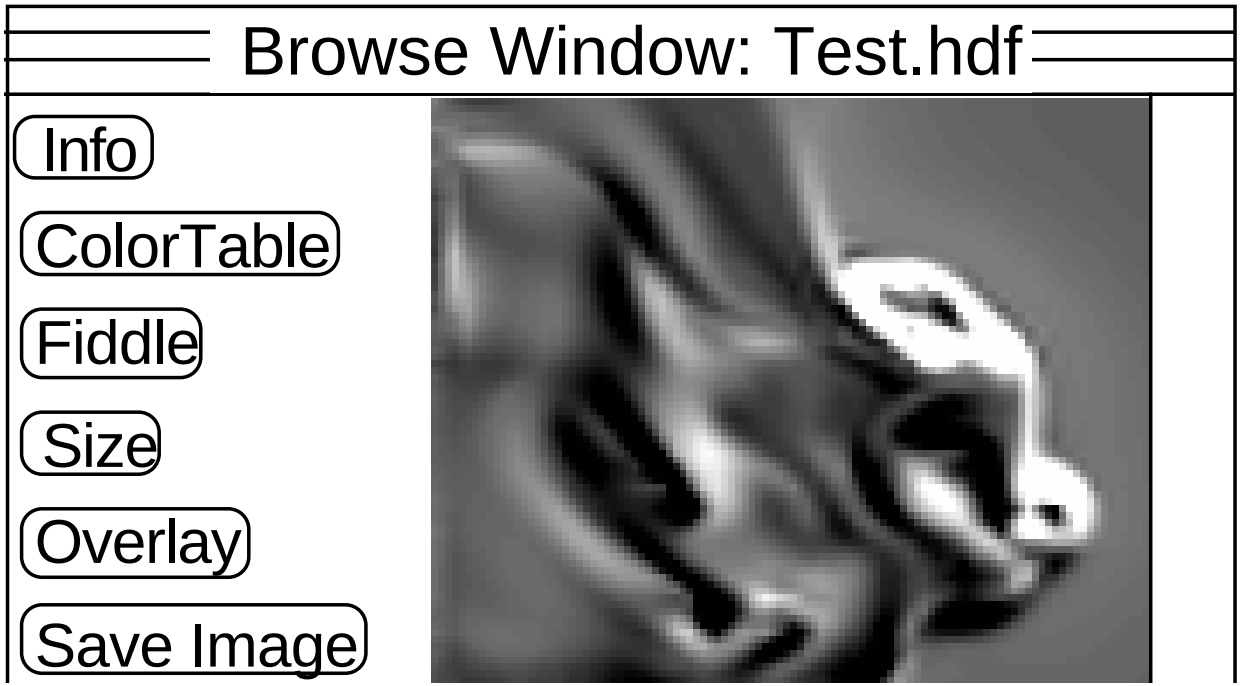
# EOSView: Datafile Window



# EOSView: Info Group Opened



# EOSView: Pseudocolor Display



# SDPS EP4 Prototype Status

Lynne Case
SDPS

## EP4 Design Review

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# SDPS EP4 Prototype Status

## Scientist Workbench Prototype

- Objectives
- Capabilities
- COTS
- Status

## Advertising Service Prototype

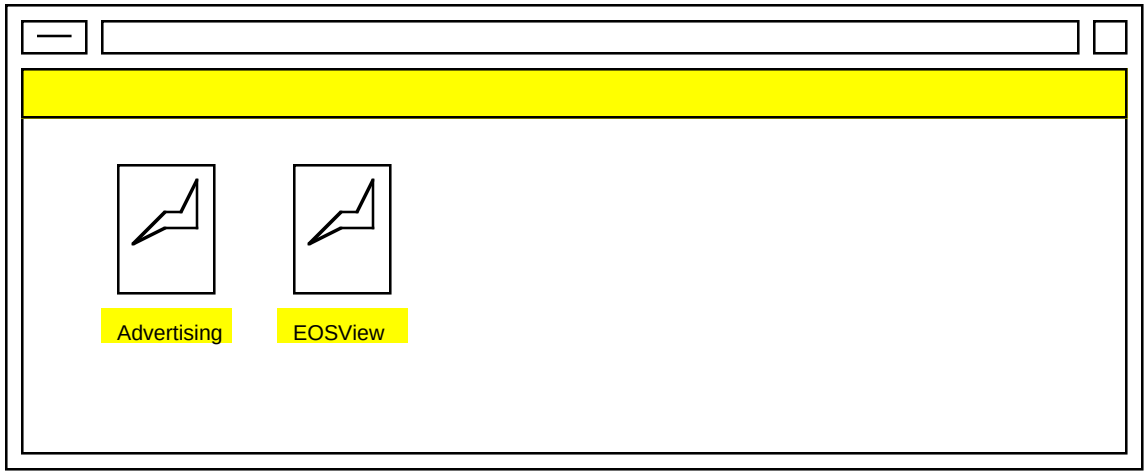
- Objectives
- Capabilities
- COTS
- Status

# Scientist Workbench Objectives

- **Build screens similar to those from SDR using native X and Motif.**
- **Use as a stop-gap measure until object desktop paradigms become available on more platforms.**

# Scientist Workbench Capabilities

- File manager type application that will launch the EP4 applications.
- New icons can be installed from the advertising service.
- Pull-down menus will include access to other functions such as User Survey, setting a new directory, etc.



# Scientist Workbench COTS

- **The scientist workbench will be developed using X and Motif with the help of a GUI builder for some functions.**
- **The system cannot rely on the existence of CDE, because some platforms do not support CDE.**
- **Some prototyping will be done with CDE toolkit to gain experience.**

# Scientist Workbench Status

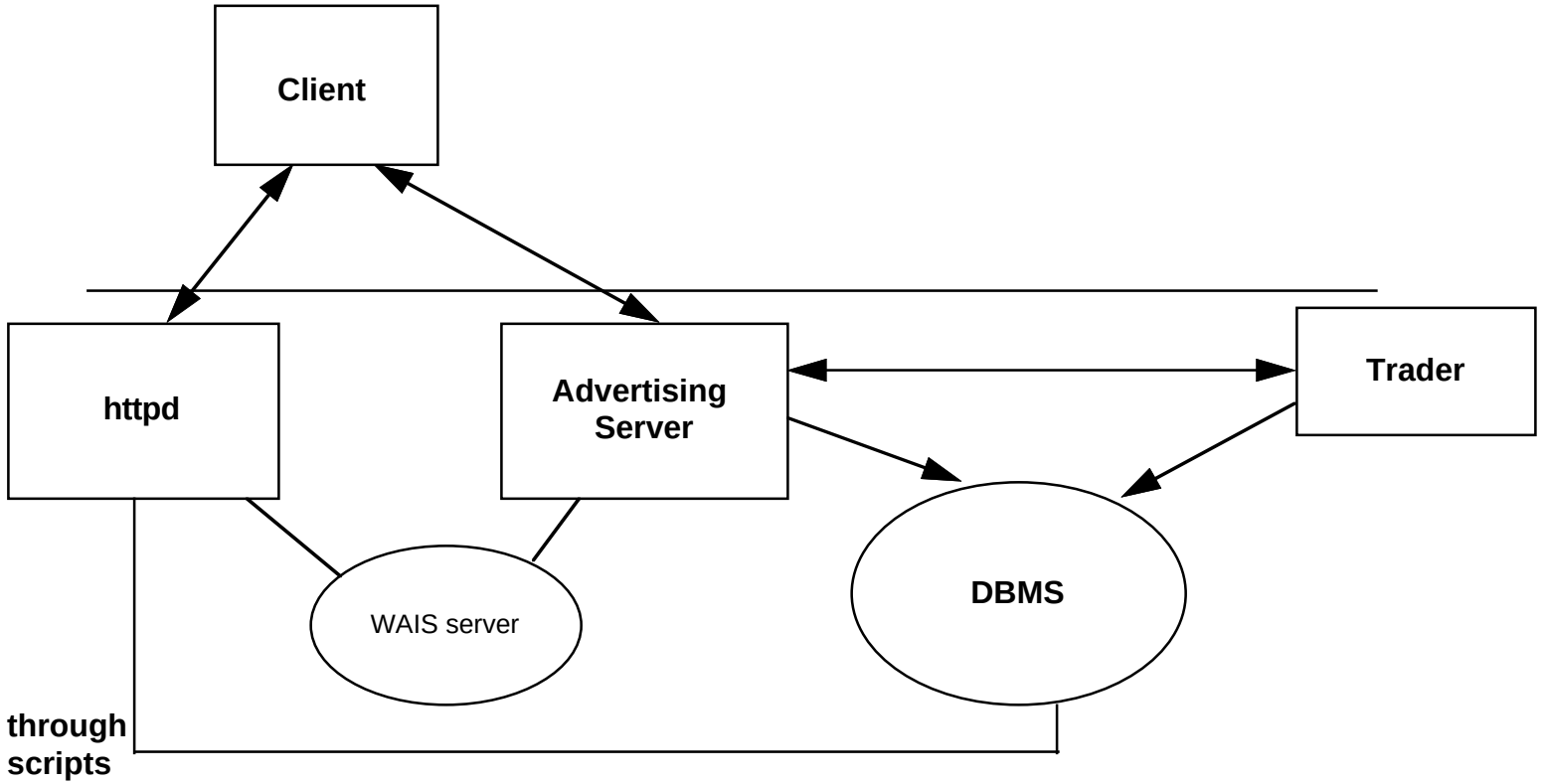
- **Currently, can read file names and display icons.**
- **Can change directories to traverse file system.**
- **Need to do the following:**
  - **Distinguish between regular files and application files to display appropriate icons.**
  - **Launch applications based on file type.**
  - **Use of color icons for files and directories.**
  - **Integrate with the advertising service to recognize new files installed in a directory.**

# Advertising Service Objectives

- **Flush out requirements of the advertising service in terms of searching and traversal.**
- **Determine the level of information that is needed at the advertising service.**
- **Determine the interface with the CSMS trader.**

# Advertising Service Capabilities

**Client will talk to both the httpd and a DCE server in order to query and traverse advertisements**



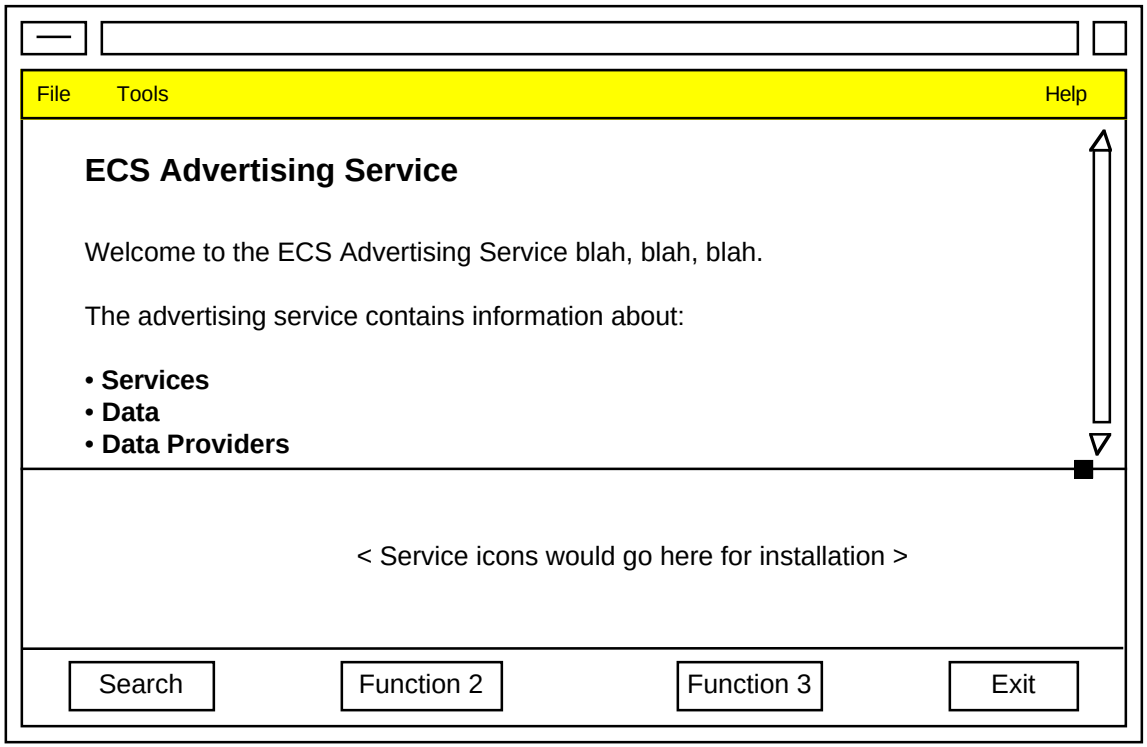
# Advertising Service Capabilities

**The user will have multiple ways to find advertisements.**

- **Traverse hyperlinks to “surf” around the system.**
- **Perform a text search on the advertisement database.**
- **Perform an attribute search on the keywords of a service or a data set.**

# Advertising Service Capabilities

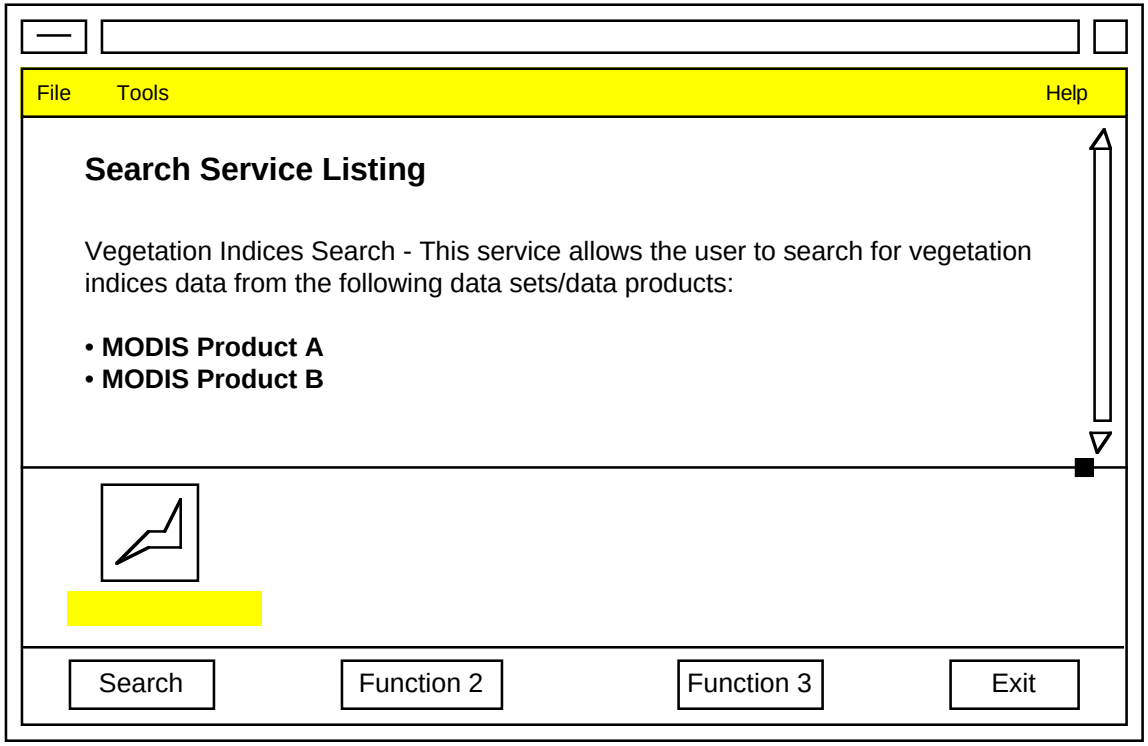
**When the client is started, the user will be connected to an Advertising Service “Home Page”.**



# Advertising Service Capabilities (cont.)

**The advertising service will contain information about services and the data related to those services.**

**Queries can be posed to find services or to find data sets.**



# Advertising Service Capabilities (cont.)

- **Installed services when launched will do one of two things:**
  - **Display a mockup of the service**
  - **Display an informational window that shows that the service requested was installed correctly.**
- **Mockups should not be evaluated for correctness. For demonstration only.**
- **Installed services will remain across sessions.**

# Advertising Service COTS

- **Uses the following COTS:**
  - **Sybase DBMS**
- **Uses the following public domain:**
  - **WWW libraries and HTML widget for client.**
  - **Motif ++ public domain class library.**
  - **HTTP daemon from NCSA**
  - **freeWAISsf for text searching.**

# Advertising Service Status

- **Encapsulated the HTML widget in a C++ class for reuse in other applications. Needs a little tuning.**
- **Working on HTTP document hierarchy.**
- **Using Core Metadata model of data set information as basis for data side.**
- **Still needs work:**
  - **Integration of CSMS trader.**
  - **Dynamic building of HTML from Sybase DBMS.**
  - **Attribute search screens.**
  - **Installation of services into workbench.**
  - **Definition of input format and mechanism for advertisements.**

# CSMS Increment 0 and Prototypes for EP4


## Laks Prabhala
## CSMS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## EP4 Design Review

## September 20, 1994

# CSMS EP4 Incremental Development

**DCE Security Development**

- **Kerberos - DCE/nonDCE Interoperability Development**
- **Access Control Lists**

**Intercell Development**

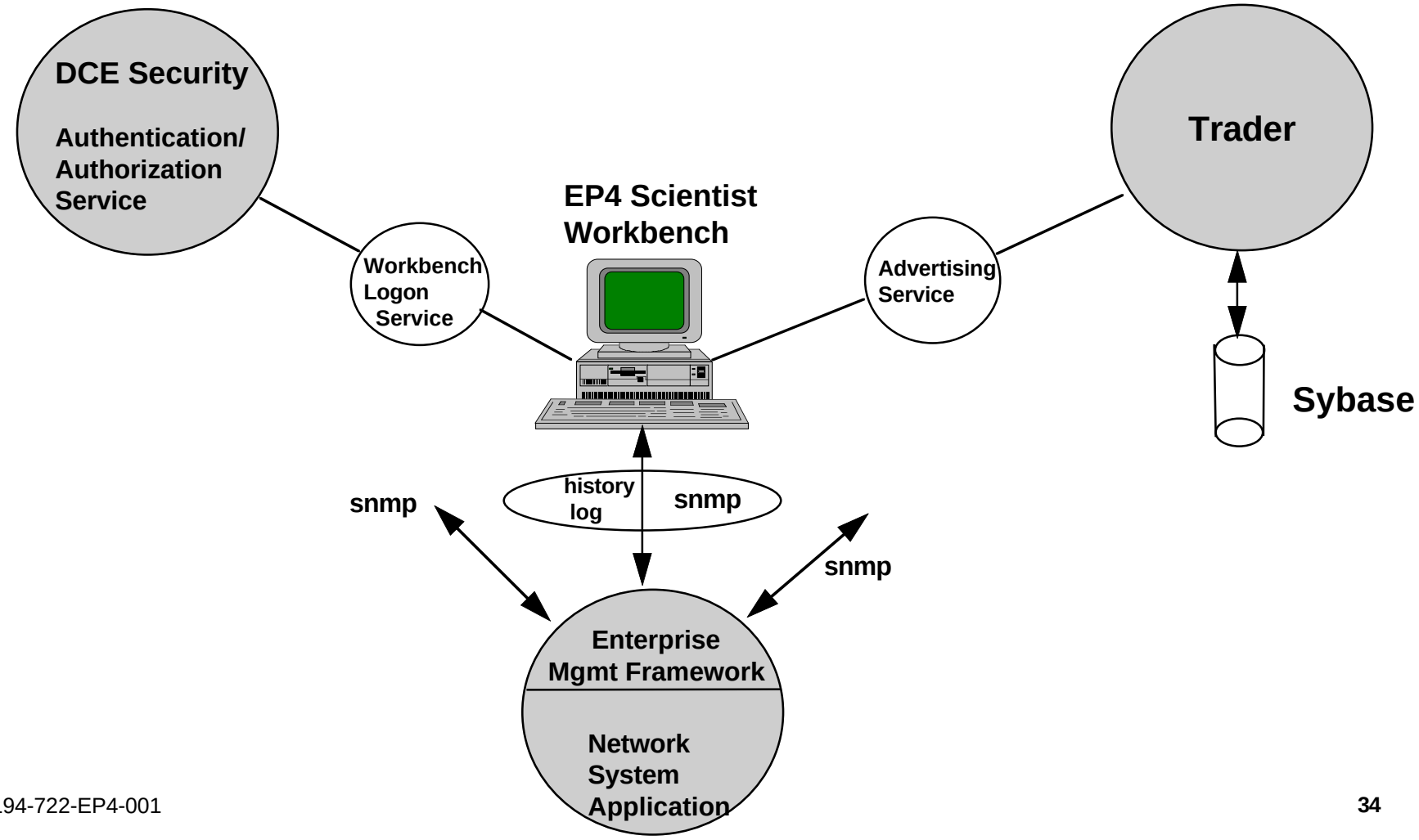
**Network Management**

# CSMS EP4 Prototypes Definitions

**Enterprise Management Prototyping (MSS)**

**Interoperability (Trader)**

# CSMS in EP4


DCE Security
Authentication/
Authorization
Service
Workbench
Logon
Service
EP4 Scientist
Workbench
Advertising
Service
Trader
Sybase
snmp
history
log
snmp
snmp
Enterprise
Mgmt Framework
Network
System
Application

# DCE Security Development

**Establish method that non-DCE user/client will gain access to DCE Services**

**Study the requirements of Software for the non-DCE client (minimum software to access ECS services.)**

**Development of an Access Control List (ACL) and Authentication API**

**Study the different access levels and their security requirements**

**STATUS 09/20/94**

- **Presently working with the Kerberos Version 5 Beta 4 from MIT**
  - **The authentication portion of the Security works OK on HP, SUN and IBM**
- **Design of the ACL API completed - working with SDPS on finalizing**

**ISSUES**

- **Incompatibility of the Kerberos Ticket vs DCE tickets**
- **User Class definitions - co-ordination with SDPS**

# Network Management

**Selection of Enterprise Management Product for Release A**

**Performance monitoring (plus M&O) of EP workstation and client/server applications**

**Data Collection for Hosts and Network Devices**

**STATUS**

- **Enterprise Management Product Selected - OpenView from HP**
- **Performance Monitoring**
  - **extensive data being collected - file transfer, RPCs**
  - **completed the data collection list for Hosts and Network Devices**
- **M&O getting involved in OpenView Operations**
  - **Working on a Draft version of Operations Concept for OpenView**

# DCE Intercell Development

**Configure Multiple cells of DCE**

**Performance study of single cell vs intercell**

**STATUS**

**Three DCE Cells are currently configured: *epcell*, *edfcell* & *csms2cell***

**Intercell Operations established with both Static & Dynamic Binding**

**ISSUES**

**Naming of DCE cells and DNS issues**

**DCE 1.1 will have the Cell Aliasing feature**

# DCE Encapsulation & Trader Service

**Look at encapsulating application interfaces from underlying DCE**
**Gauge how this process will work**
**Isolate SDPS/FOS from technology changeover**

**Trader Service for SDPS Advertising Service**

**STATUS**

- **HP OODCE installed in EDF**
- **Getting familiar with the Class Libraries provided by OODCE**
- **Interfaces defined between SDPS and CSMS**
- **Design completed; coding 70% completed**

**ISSUES**

- **OODCE is available today only on HP- portability issue (not for EP4)**

# Enterprise Management

DBMS

- Bring in DBMS (relational/multi- dimensional , and/or Object-Oriented)
- Set up a CSMS data schema and extract information from CSMS History Log and threshold messages from Enterprise Management Platform
- Refine history log collections

Report generator front-end (part of DB package)

Study performance overhead attributed to the DB package - generate relative timing and performance data

Statistical analysis (part of DB package)

**Status**

- **ORACLE and tools on CSMS development workstation(SUN)**
- **Initiated system log collections on SUN and HP platforms**
- **Evaluated vendor MIBs to help refine history log collections - now processing log data to store in DB**

# COTS in EP4

**DCE / OODCE**

**SYBASE for Trader**

**ORACLE for Management Data**

**OpenView for Network Node Management/ Performance/Data Collection**

# EP4 Integration and Test

Gil Tadmor
CSMS

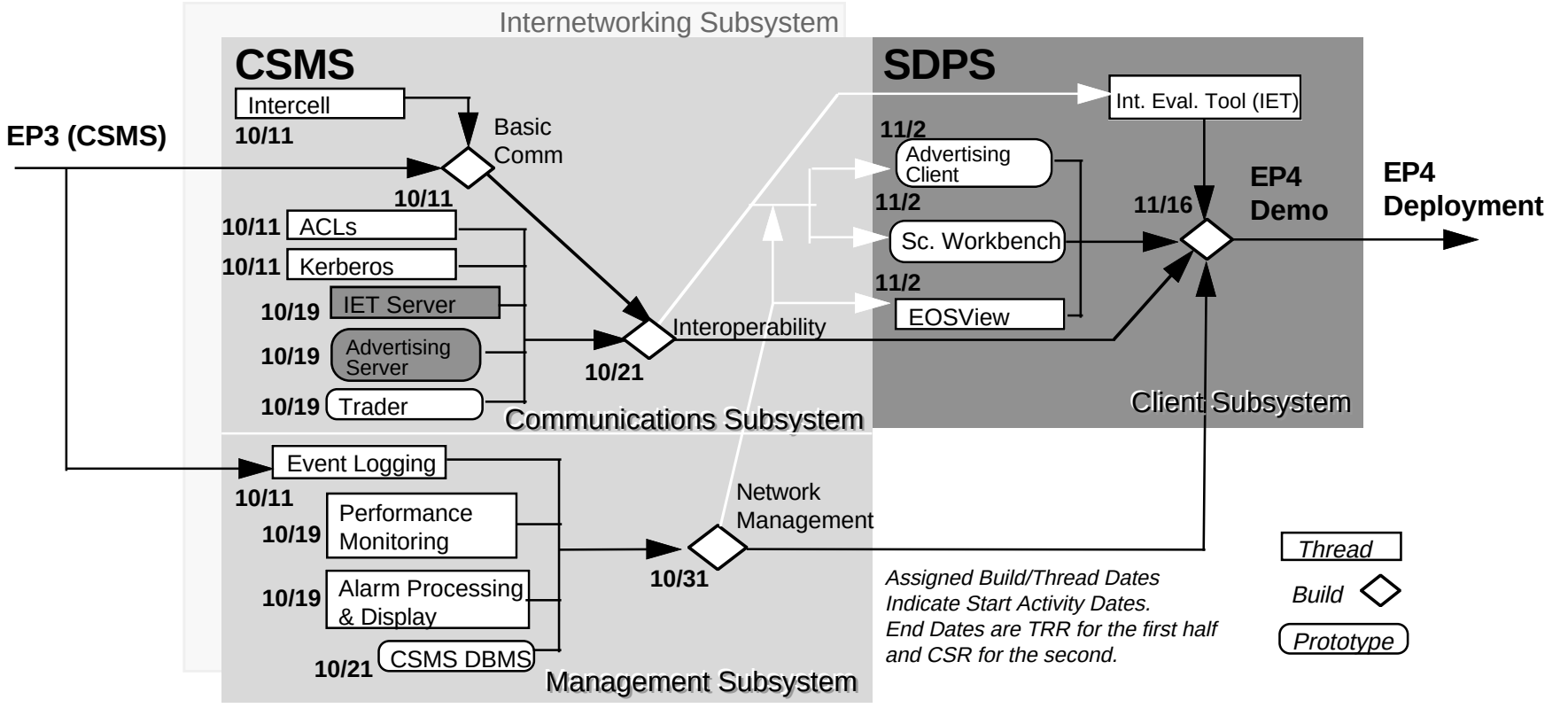
## EP4 Design Review

September 20, 1994

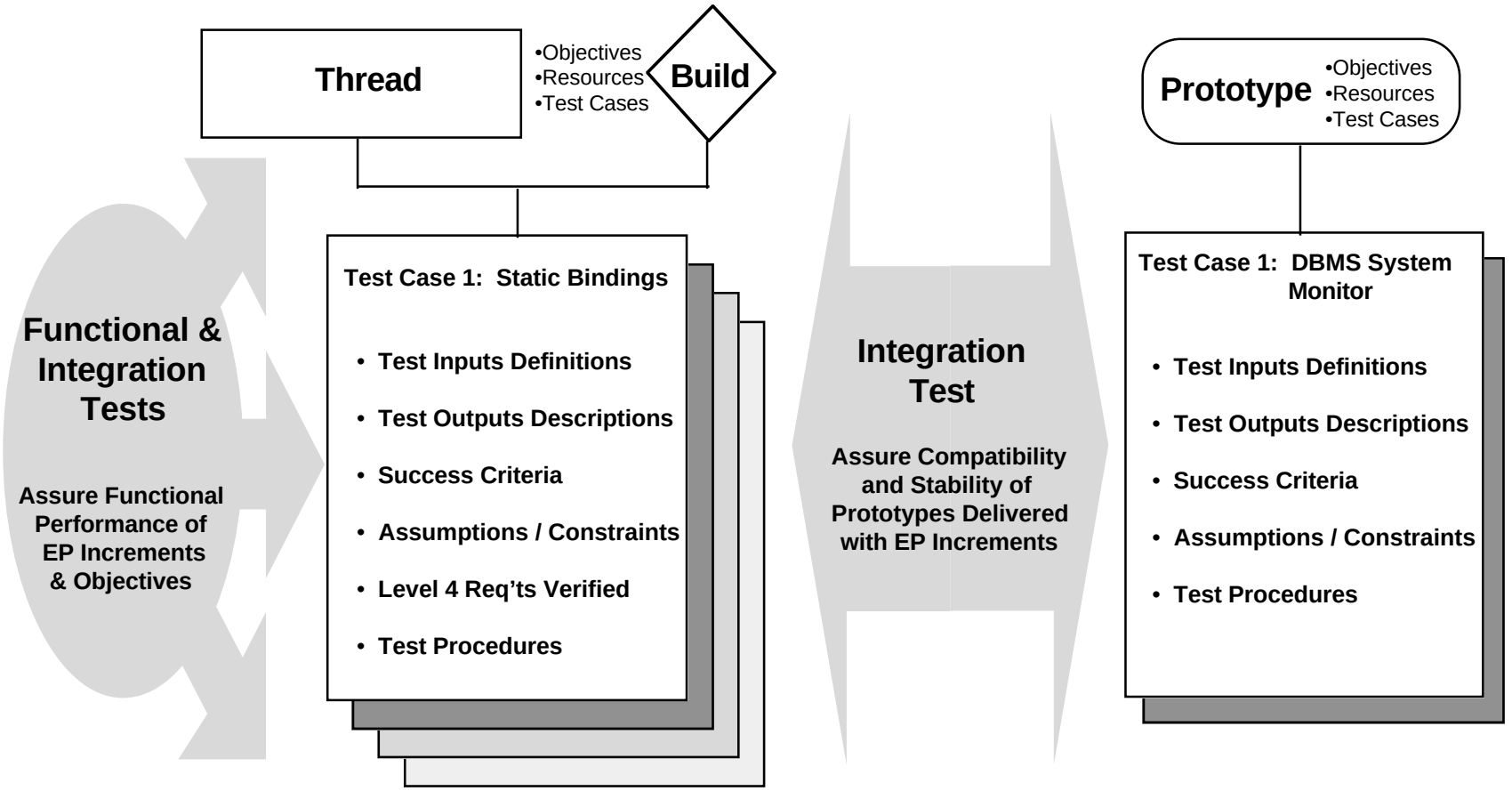
# Overview

- I&T Approach for EP4
  - Build / Thread Plan
  - I&T Schedules
  - Test Case and Procedure Outline
- Planned Resources
  - EDF Facility
  - Test Tools
  - Non-Conformance Tracking
  - Test Data

# EP4 Build / Thread Plan



# Test Cases




***Thread*** *- a set of components (software, hardware, and data) and operational procedures that implement a function or set of functions.*
***Build*** *- an assemblage of threads to produce a gradual buildup of system capabilities. Builds are combined with other builds and threads to produce higher level builds.*
***Prototype*** *- focused rapid development of specific system aspects which may advance evolutionary change.*

# Test Procedures

- Provided for each Test Case
- Comprised of Two Parts:
  - Manual steps for the Test Conductor (primarily setup and execution)
  - Recorded scripts via the capture/playback test tool
- To be Configuration Controlled via the Test Notebook (Manual Procedures) and ClearCase (Automated Scripts)
- Test tool will assist in:
  - generating single and multi-user scenarios
  - providing accurate and repeatable system load tests

# Planned Resources

- **Assigned I&T Workstations in the EDF**
- **Automated GUI Test Tool (vendor selection completed)**
- **Non-Conformance Reports (NCRs) encountered during the I&T phase will be tracked via the Distributed Defect Tracking System (DDTS)**
- **Input Test Data Comprised of:**
  - **Earth Science Data (identified by the Science Office)**
  - **Other Event Triggers/Stubs (for advertisers, event logs, etc. - supplied by the developers or I&T)**
- **Increment Objectives Folders to Provide L4 Req’ts Traceability for Verification Purposes**

# Action Items and Next Steps

George Percivall
SI&P

## EP4 Design Review

**September 20, 1994**

# Open EP Action Items

| Number | | rigi | rigi or | escri io | Res o se | ue e |
|---|---|---|---|---|---|---|
| | | EP Work | | Multi-Site Search/Access: For release A, TRMM | | PDR (EP5/ WS1 |
| 3 | 26-Jul | shop | Blake, D | researchers will need to be able to access at three | Nakamura, E | update of EP WP) |
| | | | | DAACs. how will this be done? | | |
| 10 | 26-Aug | EP4 Obj | Hinds, N | What is the ability to host future EPs on science | Percivall, G | 20-Sep |
| | | Rvw | | advisors workstations | | |
| 11 | 26-Aug | EP4 Obj | Holm, M | User Services: what "staff tools" are provided, in | Nakamura, E | PDR (EP5/ WS1 |
| | | Rvw | | which EP and how are they developed | | update of EP WP) |
| 12 | 26-Aug | EP4 Obj | Sharma, A.K. | In which EP will the predicting of time to fill order | Prabhala, L | 20-Sep |
| | | Rvw | | be provided (Qos) (Parameters provided by trader) | | |
| 13 | 26-Aug | EP4 Obj | Baldwin, D | Save on expense of data for EPs by subsetting | Percivall, G | PDR (EP5/ WS1 |
| | | Rvw | | | | update of EP WP) |
| 14 | 26-Aug | EP4 Obj | Sharma, A.K. | Identification of SDPS-Scientist Workbench APIs to | Nakamura, E | PDR (EP5/ WS1 |
| | | Rvw | | be evaluated in EPs | | update of EP WP) |

# EP Action Item #13. EP Data Diversity

**Action Item #13**

**Expand from D. Baldwin's comment "subsetting to save archive cost" to "addressing data diversity"**

**EP Data Diversity Issues**

- **Dimensions/Definition of Data Diversity**
- **Rely on V0 Pilot Data Migration Data Sets**
- **Need is for EP6**
- **Limited development resources for EP data**
- **Data Migration Cost Model: initial effort not offset by subsetting**
- **Archive size for EP6: offset by subsetting**
- **Focus on Release A: e.g. AVHRR, TOVS, SSM/I, and selected derived GOES data (SOW 2.5.1.2)**

# EP4 Schedule

| | |
|---|---|
| 9/20/94 | EP4 Design Review |
| 10/94 | CSMS Increment 0 Peer Review |
| 10/94 | SDPS Increment 0 Peer Review |
| 10/11/94 | Initial CSMS Threads to EP I&T |
| 10/19/94 | Initial SDPS Threads and API Calls to EP I&T |
| 11/2/94 | Test Readiness Review (all threads to EP I&T) |
| 12/8/94 | Consent To Ship Review |
| 12/94 | DAAC Installation |
| 12/22/94 | EP4 System Test |
| 1/4/95 | EP4 Readiness Review |
| 1/95-2/95 | EP4 Evaluation Period |